

## C L A I M S

1. Energy line guide chain for running lines  
 5 between a stationary and a movable connection, with  
 jointed chain links (1,21,37) of plastic, which define  
 each a channel section (8,28,60) extending in the  
 direction of the energy line guide chain (12;35), each  
 chain link (1;21) comprising two opposite link plates  
 10 (2,3;22,23;38,39) extending in spaced relationship in a  
 longitudinal direction of the energy line guide chain  
 (12;35), which link plates are interconnected by at least  
 one crosspiece (4,5;24,25;40,41), each link plate  
 (2,3;22,23;38,39) comprising a joint body (6,26,42) and a  
 15 joint receiver (7,27,46), which extend substantially  
 crosswise to the longitudinal direction of the energy  
 line guide chain (12,35), with a joint body (6,26,42) of  
 a chain link engaging a joint receiver (7,27,46) of an  
 opposite link plate (2,3;22,23;38,39), characterized in  
 20 that a clearance (20) is provided respectively between  
 the partially overlapping link plates (2,3;22,23;38,39)  
 of two adjacent chain links (1,21,37), and that the joint  
 body (6,26,42) comprises two diametrically opposite outer  
 surface areas (18) and the joint receiver (7,27,46) two  
 25 diametrically opposite inner surface areas (19), and only  
 the outer surface areas (18) and inner surface areas (19)  
 lie against each other.

2. Energy line guide chain of claim 1,  
 30 characterized in that the normal lines of the outer  
 surface areas (18) and inner surface areas (19) extend  
 substantially perpendicularly to the longitudinal  
 direction of the energy line guide chain (12,35).

*Sub A1*

3. Energy line guide chain of claim 1 or 2, characterized in that the joint body (6,26,42) is made substantially cylindrical, and the joint receiver (7,27,42) has a substantially oval cross section.

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4. Energy line guide chain of claim 1 or 2, characterized in that the joint body (6,26,42) has a substantially oval cross section and the joint receiver (7,27,46) a circular cross section.

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5. Energy line guide chain of one of claims 1-4, characterized in that two adjacent chain links (1,21,37) are adapted for pivoting relative to each other over a sector angle up to about 45°.

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6. Energy line guide chain of one of claims 1-5, characterized in that the joint body (42) is formed by joint body segments (43), which are separated from one another by slots (44).

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7. Energy line guide chain of one of claims 1-6, characterized in that the joint body (42) comprises in the region of its free end portion a radially outward directed collar (45).

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8. Energy line guide chain of claim 7, characterized in that a cavity (47) is provided in concentric relationship with a joint receiver (46), into which the collar (45) extends with a play.

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*Sub A2* 9. Energy line guide chain of one of claims 1-8, characterized in that the crosspiece (4,24)

comprises a convexly curved portion (9,29), which lies in a plane extending substantially crosswise to the link plate (2,22) and engages an opposite portion (10,30) made to correspond with the convexly curved portion (9,29),  
 5 the portion (9,29) of the crosspiece (4,24) of a chain link (1,21) engaging the portion (10,30) of the crosspiece (4,24) of an adjacent chain link (1,21).

10. Energy line guide chain of claim 9,  
 10 characterized in that the convexly curved portion (29) is formed in a free end region of an extension (32) extending in the longitudinal direction of the energy line guide chain, and that the crosspiece (24) comprises a cutout (33), which merges into the portion (30), with  
 15 the cutout (33) narrowing from an end face (34) of the crosspiece (24) in the direction of the portion (30).

*Sub AB*  
 11. Energy line guide chain of claim 9 or 10,  
 20 characterized in that at least the portion (9,29) and the portion (10,30) are made symmetrical with respect to an axis (11,31) extending substantially parallel to the longitudinal axis of the energy line guide chain.

12. Energy line guide chain of one of claims  
 25 1-11, characterized in that two adjacent chain links (1,21) comprise two spaced-apart outer joint axes (13), that the adjacent chain links (1,21) comprise crosspieces (4,24), whose overall extension between the joint axes (13) is greater than the spacing between the outer joint  
 30 axes (13).

13. Energy line guide chain of one of claims 1-12, characterized in that at least two adjacent chain

links (1;21) comprise two opposite crosspieces (5;25) extending in spaced relationship crosswise to the longitudinal direction of the energy line guide chain (12;35), wherein in a stretched state of the energy line guide chain (12;35), the crosspieces (5;25) of the adjacent chain links (1;21) extending in a common plane are spaced from one another, and wherein these crosspieces (5;25) adjoin one another in a curved region.

14. Energy line guide chain of one of claims 1-13, characterized in that a crosspiece (40) is adapted for detachably connecting with its one end to a link plate (38), and that it connects to the other link plate (39) by means of a film hinge (48).

15. Energy line guide chain of claim 14, characterized in that in the region of the film hinge (48), the crosspiece (40) comprises at least one projection (53), so that in a closed position of the crosspiece (40), the projection (53) lies on an edge of the link plate (39).

16. Energy line guide chain of claim 14 or 15, characterized in that the crosspiece (40) forms a cover.

17. Energy line guide chain of one of claims 1-16, characterized in that at least one link plate (38,39) comprises at its one end a stop element (61) and at its other end a stop surface (62), the stop surface (62) being designed and constructed substantially parallel to a center plane of the link plate (38,39).

18. Energy line guide chain for running lines between a stationary and a movable connection, with

jointed chain links (1,21,37) of plastic, in particular in accordance with one of claims 1-16, the guide chain comprising at least one connecting link (63), characterized in that the at least one connecting link (63) comprises a base body (64) with at least one receptacle (68), which is adapted for receiving a connection element mounted to a connection point, and a locking element (80) cooperating with the base body (64), which is used to secure the connection element to the base body (64).

19. Energy line guide chain of claim 18, characterized in that the receptacle (68) is defined by a wall (69), which is molded to a bottom wall (70) and made at least in part spring-elastic, and that the wall (69) forms with the connection element a snap connection.

20. Energy line guide chain of claim 19, characterized in that the wall (69) is formed by at least two wall segments (71,73), which are separated from one another by slots (72).

21. Energy line guide chain of claim 20, characterized in that four wall segments (71,73) are provided, with two opposite wall segments (73) being made substantially rigid, and the two further opposite wall segments (71) being made substantially spring-elastic.

Sub A5 22. Energy line guide chain of claim 19, 20, or 21, characterized in that the locking element (80) is displaceably connected to the base body (64), so that in a locking position, the locking element (80) impedes at least the deflection capability of the wall (69), and facilitates it in another position.

23. Energy line guide chain of claim 22,  
characterized in that the locking element (80) is made  
substantially U-shaped, with its free legs (81,82)  
5 partially abutting in a locking position the wall (69),  
in particular the elastic wall segments (71).

24. Energy line guide chain of claim 23,  
characterized in that the base body (64) comprises a  
10 slide-in opening (74), in which the locking element (80)  
is held for displacement, with the free legs (81,82)  
thereof partially abutting in the locking position the  
wall (69), in particular the elastic wall segments (71),  
and the lateral surfaces (77) of the slide-in opening  
15 (74).

25. Energy line guide chain of claim 24,  
characterized in that the locking element (80) comprises  
a safety flap (85), which is spaced from the legs (81,82)  
20 and made substantially parallel to same, the locking  
element (80) being adapted for moving to the locking  
position only when the safety flap (85) is released by  
the connection element.

26. Energy line guide chain of claim 25,  
characterized in that the base body (64) comprises a  
projection (88), which extends into the plane of movement  
of the safety flap (85), that the safety flap (85) has an  
opening (86), which engages the projection (88) in the  
30 locking position, the safety flap (85) being adapted for  
deflection by the connection element such that same can  
be moved to the locking position.

27. Energy line guide chain of claim 26, characterized in that the projection (88) and the opening (86) have such a shape, that no automatic release of the locking engagement occurs.

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*Sub A6* 28. Energy line guide chain of one of claims 18-27, characterized that the receptacle (68) fully extends through the base body (64).

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29. Energy line guide chain of one of claims 18-28, characterized in that the receptacle (68) and the connection element are designed and constructed rotationally symmetric.

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